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Arboreal Nocturnal Roosting Behavior of a Fledgling American Dipper

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ABSTRACT.—Although the American Dipper (*Cinclus mexicanus*) uses a variety of sites on the ground adjacent to streams for nocturnal roosts, I observed nocturnal roosting in a tree by this species, apparently the first reported case for any dipper species. A fledgling spent at least 8 hours between 20:06 and 04:30 MST sleeping 1.5 m high in a black cottonwood tree (*Populus trichocarpa*), at the tip of a branch overhanging a creek. Use of arboreal roost sites may reduce the probability of predation on fledgling dippers while they are sleeping. *Received 1 Aug. 1999, accepted 19 Oct. 1999.*

Sites selected by diurnal birds for nocturnal roosting are no less important for survival than sites they choose for nesting (Skutch 1989) because sleeping birds are extremely vulnerable to predators and unfavorable weather. American Dippers (*Cinclus mexicanus*) are known for a life cycle closely associated with fast-moving water and for placing nests in sites that are inaccessible to most predators, such as stream-side cliffs, mid-stream boulders, behind waterfalls, and the undersides of bridges (Bent 1948; Kingery 1996; pers. obs.). Adults often roost overnight during the breeding season in or near their nests under bridges and in rock crevices (Kingery 1996), and once were reported roosting during winter under a tangle of roots in a steep stream bank (Ehinger 1930). Nest and nocturnal roost sites similar to those of the American Dipper are used by the ecologically similar Eurasian Dipper (*C. cinclus*; Cramp 1988, Tyler and Ormerod 1994). Recently fledged Eurasian Dippers sometimes return to the nest to roost overnight (Cramp 1988).

Survival estimates for fledgling and juvenile American Dippers are less than 35% (Price and Bock 1983); consequently, choice of nocturnal roost sites could be an important component affecting juvenile survival. I have been unable to locate previous reports of dippers of any species roosting overnight in trees or shrubs. However, perching in vegetation, including trees along streams, has been reported occasionally for American and Eurasian dippers (Drew 1881; Merriam 1899; Bakus 1959; Hewson 1967; S. Osborn, pers. comm.), up to 7.6 m above the ground.

I made the following observation of arboreal roosting by a fledgling American Dipper along West Rosebud Creek at Pine Grove Campground (45° 16′ N, 109° 39′ W; 1798 m elevation) in the Beartooth Mountains of Stillwater County, Montana. At 19:56 MST on 23 June 1999 I heard a fledgling dipper at streamside that vocalized loudly while being fed by an adult. During the next 10 min the fledgling was fed twice as it remained within a 6–8 m stretch of streamside habitat beneath a canopy

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of lodgepole pine (*Pinus contorta*) and black cottonwood (*Populus trichocarpa*). During the same interval, five times the fledgling flew to the lowest branches (< 2 m above ground level) of two cottonwood trees that overhung the stream bank.

On the fledgling's first foray into the trees it continued to dip (a rapid up-and-down movement of the entire body, performed by flexing the legs into a crouch then standing; Kingery 1996), making the branch on which it perched vibrate noticeably. The bird remained in the tree for 45 s before flying back to the bank below the tree. Shortly after returning to the bank it again flew up to the same branch. This time the bird froze in a crouched position as soon as it landed and remained motionless for about 30 s before again returning to the bank below the tree. Shortly after returning to the bank it was fed by an adult. It moved 3 m downstream along the bank before flying clumsily up to the branch of another cottonwood, where it clung upside down for about 5 s before falling into the creek and swimming to shore. The fourth foray up to the cottonwoods was similar to the first, with the fledgling continuing to dip as it stood on a branch in the second cottonwood before once again flying down to the bank below the trees, whereupon it was fed a second time by an adult. At 20:06 the fledgling flew up to the branch where it perched originally and immediately became motionless in a crouched position with fluffed plumage; the only noticeable movement was the flashing white of its eyelid. The fledgling yawned twice and tucked its beak over its shoulder and under its scapulars at 20:15. It aroused at 20:30 but settled to sleep again with beak tucked under its scapulars 4 min later. It remained motionless until it was too dark for further observation (20:46). The fledgling was still present in the roost at 04:00 (twilight) the next morning but had departed by 04:30.

The roost site used by the fledgling dipper was a branch in a small cluster of cottonwood leaves 1.5 m from the trunk of a 7.5 m tall cottonwood (diameter breast height = 17 cm) and about 1.5 m above a small rapid in the creek. The site appeared to be well protected from potential predator attack. The roost was near the tip of a small (ca 2 cm diameter) flexible branch that would have vibrated if any predator used it to approach the sleeping dipper, and the roosting bird overhung fast moving water, thereby restricting predators to approach from the air or along the branch. Finally, a small cluster of cottonwood leaves partially hid the fledgling from the sides and overhead, presumably making visual detection by a predator less probable. The roost was less protected from unfavorable weather, such as wind-driven precipitation.

Potential roost sites similar to that used by the fledgling dipper appear to be numerous along many streams where dippers are present in western Montana (pers. obs.). Furthermore, cottonwood, willow (*Salix* spp.), birch (*Betula* spp.), alder (*Alnus* spp.) and dogwood (*Cornus* spp.) are regular components of riparian corridors in mountain foothills of western North America (Bakus 1959, Price and Bock 1983, Knight 1994). Use of nocturnal roosts in trees and shrubs overhanging moving water could be a more prevalent behavior among American Dippers than previously suspected, particularly among fledglings and juveniles where predation is potentially great.

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Perch Proximity Correlates with Higher Rates of Cowbird Parasitism of Ground Nesting Song Sparrows

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ABSTRACT.—The reproductive success of avian brood parasites depends, to a great extent, on their ability to locate host nests that are at the appropriate stages of the host laying cycle. Consequently, brood parasites are expected to possess elaborate mechanisms and search modes to locate potential host nests. Through observing a population of Song Sparrows (*Melospiza melodia*) parasitized by the Brown-headed Cowbird (*Molothrus ater*) we examined two specific factors that may influence cowbird parasitism of a ground nesting host. Proximity to potential perches was a significant predictor of cowbird parasitism, but overhead nest visibility, either classified dichotomously as visible or not, or measured as the absolute area of a nest visible to an observer, was not correlated with the likelihood of parasitism. Comparisons with previous studies suggest that female cowbirds use similar nest searching mechanisms in open habitats, irrespective of the height of host nests. *Received 16 April 1999, accepted 23 Aug. 1999.*

The reproductive success of avian brood parasites and their effect on host populations depend, to a great extent, on the number of potential host nests and the stage at which host nests are located (Payne 1977, Rothstein 1990). Consequently, there has been considerable effort to determine the cues and search modes that brood parasites use to find nests (Lowther 1979, Thompson and Gottfried 1981, Yahner and DeLong 1992, Vogl et al. 1997, Clotfelter 1998, Teuschl et al. 1998).

The Brown-headed Cowbird (*Molothrus ater*) is a generalist brood parasite known to parasitize more than 220 bird species (Friedmann 1963, Lowther 1993). There is behavioral evidence (Fleischer 1985; but see McGeen and McGeen 1968) and genetic evidence (Alderson et al 1999, Gibbs et al. 1997) that individual female cowbirds may lay eggs in nests of more than one host species. Because the many host species of the Brown-headed Cowbird also build nests at different heights and on many substrates (Lowther 1993, Martin 1993), the mechanisms by which cowbirds find these nests are particularly intriguing.

There are at least four non-exclusive hypotheses proposed to explain the mechanisms and cues used for nest finding by Brown-headed Cowbirds (Lowther 1993, Clotfelter 1998). (1) The nest exposure hypothesis suggests that the more visible the nest of a potential host is, the more likely it is to be parasitized (Martin 1993). (2) The perch proximity hypothesis proposes that female cowbirds are better able to locate host nests when they can observe them from above at a nearby perch (Alvarez 1993, Paton 1994, Romig and Crawford 1995, Clotfelter 1998, Larison et al. 1998). (3) The nesting cue hypothesis asserts that the intensity of host nest defense correlates positively with the proximity of the parasite to the host nest and, thus, the escalation of defensive behavior may serve as a cue for the searching parasite (Smith 1981, Smith et al. 1984, Uyehara and Narins 1995; but see Gill et al.

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